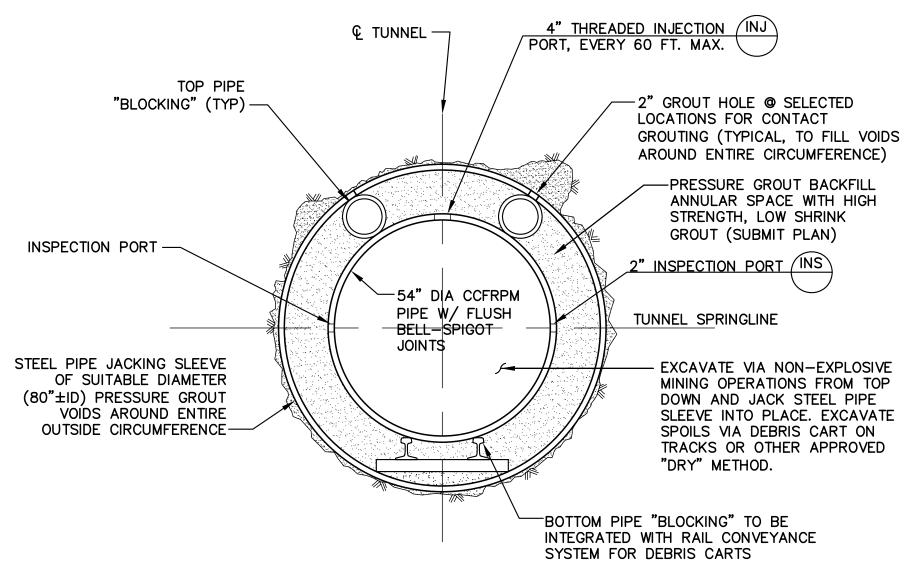


CONSTRUCTION NOTES

- CONSTRUCT 54" I.D. CCFRPM PIPE ("HOBAS" PIPE OR APPROVED EQUAL), 1.21-INCH THICK WALL, WITH FLUSH RELINING BELL-SPIGOT JOINT PER TYPICAL SLANT DRAIN HAND-MINED TUNNEL SECTION 1A ON SHEET 19.
- CONSTRUCT 54" I.D. CCFRPM PIPE ("HOBAS" PIPE OR APPROVED EQUAL), 1.21-INCH THICK WALL, WITH FLUSH RELINING BELL-SPIGOT JOINT PER TYPICAL RIB AND LAGGING TUNNEL SECTION 1A ON SHEET 19.
- CONSTRUCT VELOCITY REDUCER CONTROL RING WITH SHOP INSTALLED 6-INCH THICK REINFORCED FIBERGLASS INSIDE 54" I.D. CCFRPM PIPE PER DETAIL 8 ON SHEET 19. PLACE RING MID-WAY IN 20-FEET LONG PIPE LENGTHS. STATION LOCATION CALL-OUTS ON PROFILE ARE APPROXIMATE AND CAN SHIFT AS LONG AS NUMBER OF RINGS AND SPACING IS MAINTAINED.
- CONSTRUCT CONCRETE TRENCH SUPPORT BACKFILL PER DETAIL 8A ON SHEET 19. APPLIES TO VELOCITY REDUCER RINGS IN OPEN TRENCH REACH.
- CONSTRUCT REINFORCED CONCRETE OUTLET STRUCTURE, HEADWALL, WARPED WINGWALLS AND BEACH APRON PER MODIFIED CALTRANS STD PLAN D86B. MODIFIED PER DETAIL 9 ON SHEET 19. H=XX'+/-, DIA=54" I.D., SLOPE =2:1. (XX" INVERT SLAB, 6' DEEP 3' WIDE CUTOFF WALL ALL AROUND). CONSTRUCT DRAINAGE WEEPHOLES AT 8' MAX SPACING ALONG WINGWALLS PER CALTRANS STD BO-3, DETAIL 3-1.
- CONSTRUCT 4' POST AND CABLE RAILING IN TOP OF OUTLET HEADWALL AND WINGWALLS PER CALTRANS STD B11-47. USE PRE-APPROVED CORROSION RESISTANT STEEL MATERIALS ONLY.
- CONSTRUCT PERMANENT XX" DIAMETER PCC SOLDIER PILE TOTAL LENGTH=XX', EMBEDDED XX' (UNDISTURBED), RETAINING XX' (TEMPORARY), RETAINING XX' (PERMANENT). CENTER WXXXXX STEEL BEAM PER DETAIL 11 ON SHEET 19. TOP OF PILE EQUALS TOP OF HEADWALL. PLACE TEMPORARY 1-INCH STEEL PLATE LAGGING BEHIND SOLDIER PILES TO SPAN BLUFF FACE EXCAVATION WIDTH UNTIL PERMANENT OUTLET STRUCTURE IS CONSTRUCTED.
- INSTALL CALIFORNIA CURB SHELF BASKET WATER CLEANING SYSTEM FOR CURB INLET AS MANUFACTURED BY BIO CLEAN, INTERCEPTOR CASE (OR APPROVED EQUAL).

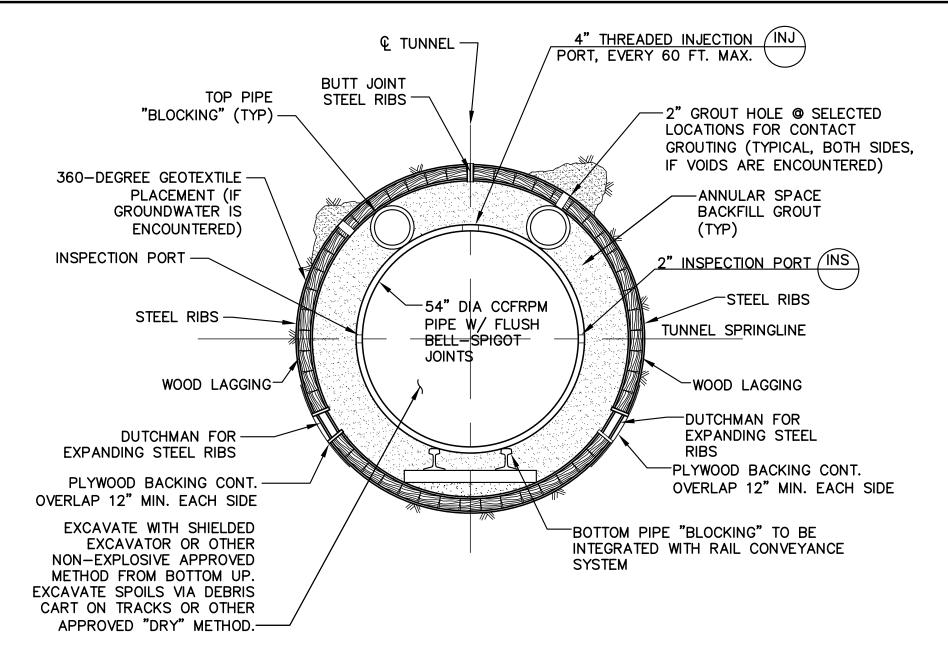
NOTES:

- PIPE BLOCKING: DESIGN, QUANTITY, LAYOUT AND LOCATION SHALL BE PER CONTRACTOR'S DESIGN. PIPE BLOCKING SHALL BE INTERMITTENT ALONG PIPE LENGTH TO ALLOW COMPLETE BACKFILL GROUT PLACEMENT. BLOCKING SHALL PREVENT MOVEMENT OR FLOTATION DURING BACKFILL GROUTING, PER THE STANDARD SPECIFICATIONS SECTION 306-3.
- SEE SECTION 207.20 FOR CARRIED PIPE SPECIFICATIONS.
- INSPECTION PORTS SHALL BE INSTALLED AS INDICATED AT THE SPRINGLINE OF THE PIPE AND SPACED AT A MAXIMUM 40 FOOT CENTERS AND LOCATED AT THE CENTERPOINT OF THE PIPE SECTION.

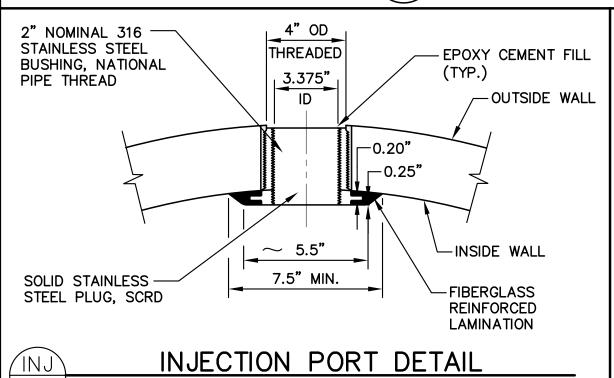


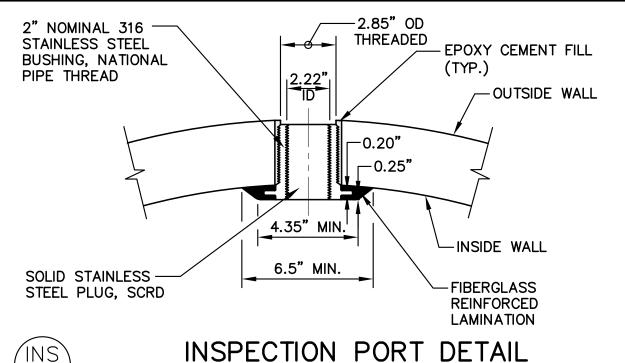
SAN RAMON CANYON STORM DRAIN "SLANT DRAIN" MINED TUNNEL SECTION SCALE: 1"=1'

- MINIMUM SIZING OF INITIAL SUPPORT SEGMENT MUST ALLOW FOR CONSTRUCTION METHOD, CARRIER PIPE AND ANY VARIANCES DUE TO MISALIGNMENT AND DEFLECTION OF INITIAL SUPPORT. CONTRACTOR SHALL DETERMINE THE EXCAVATED DIAMETER OF THE TUNNEL.
- MAXIMUM SPACING BETWEEN STEEL RIBS IS 5 FEET.
- TUNNELS USING STEEL RIB INITIAL SUPPORT SEGMENT SHALL BE LAGGED SKINTIGHT FOR THE ENTIRE CIRCUMFERENCE.
- PIPE BLOCKING: DESIGN, QUANTITY, LAYOUT AND LOCATION SHALL BE PER CONTRACTOR'S DESIGN. PIPE BLOCKING SHALL BE INTERMITTENT ALONG PIPE LENGTH TO ALLOW COMPLETE BACKFILL GROUT PLACEMENT. BLOCKING SHALL PREVENT MOVEMENT OR FLOTATION DURING BACKFILL GROUTING, PER THE STANDARD SPECIFICATIONS SECTION 306-3.
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SAN RAMON CANYON STORM DRAIN STEEL RIB & TIMBER LAGGING TUNNEL SECTION SCALE: 1"=1'





NTS

RANDALL G. BERRY RCE #44642

PLAN PREPARED BY: Harris & Associates NO. C44642 ★\RENEW 3-31-12/★

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CITY OF RANCHO PALOS VERDES

RON DRAGOO SENIOR ENGINEER DATE RCE: <u>54924</u>

DESIGNED RGB/EGR/BL DRAWN CHECKED NO. DATE DESCRIPTION DATE REVISIONS

CITY OF RANCHO PALOS VERDES



SAN RAMON STORM DRAIN DETAILS

SHEET 19 OF 3

SHT. 19

PRJ NO. XXXXX